

Remarks/Arguments

In the Non-Final Office Action dated February 22, 2010, it is noted that claims 1-17 are pending; that claims 1-6 and 9-17 stand rejected under 35 U.S.C. §102; and that claims 7-8 stand rejected under 35 U.S.C. §103.

By this response, claims 5, 7, and 12 have been amended substantially to their original form to insert the ordered pairs representing constellation points that were inadvertently removed in the preliminary amendment and claims 6 and 8 were amended to show a correspondence with the antecedent terms. No new matter has been added.

Cited Art

The references cited and applied against the claims in the present Office Action are listed as follows: U.S. Patent Application Publication No. 2003/0039321 to Lee et al. (hereinafter referenced as “Lee”); and U.S. Patent 5,066,957 to Mizuno et al. (hereinafter referenced as “Mizuno”).

Rejection of Claims 1-6 and 9-17 under 35 U.S.C. §102

Claims 1-6 and 9-17 stand rejected under 35 U.S.C. §102 as being anticipated by Lee. This rejection is respectfully traversed.

Claims 1 and 15 are independent claims. Claims 2-6 and 10-14 depend ultimately from claim 1. Claims 16 and 17 depend directly from claim 15. With respect to the limitations patentably distinguished from the references in the remarks below, both claims 1 and 15 exhibit similar limitations. Thus, the remarks below will be made with respect to claim 1 while being intended to pertain equally to claim 15 without further repetition or limitation in view of the similarity of these limitations in both independent claims.

Claim 1 calls, in part, for:

“a first subset of the second set of constellation points located in a first part of the constellation plane correspond to a first value of the first data;

a second subset of the second set of constellation points located in a second part of the constellation plane correspond to a second value of the first data;
wherein each of the first and second subsets comprises constellation points corresponding to at least first and second values of the second data; and
wherein the minimum distance between the constellation points of the first subset and the constellation points of the second subset is not less than the first minimum distance.”

Lee fails to teach, show, or suggest that, for a defined set of constellation points, there is a subset in one portion of the plane that corresponds to one value of a certain piece of data and that, for the same defined set of constellation points, there is a different subset of points in a different portion of the plane that corresponds to a different value of the same certain piece of data. Lee appears to be silent about data values and the mapping between data values and there constellation position.

Lee does not describe or suggest the concept of minimum distance among the constellation points. Lee lacks any teaching that the minimum distance between the two subsets of the second set of constellation points should be “not less than the first minimum distance” that is defined solely with respect to the constellation points in the first set. Lee is silent with respect to any teaching on distances within any constellation point set or on a relationship between the minimum distance for the first constellation set and the minimum distance for subsets of the second constellation set.

Lee does not teach, show, or suggest any relationship between one constellation point and a second constellation point involving a doubling of the abscissa and ordinate of the one point to obtain the abscissa and ordinate of the second point as defined in claims 6, 12, and 13. Lee appears to be silent about any actual relationship between constellation points in one set and constellation points in the other. The USPTO appears to agree with this position by virtue of its admission about the defects in Lee’s teachings with respect to constellation point values as set forth in the present Office Action on page 6.

Additionally, Lee fails to teach, show, or suggest that any third data is carried via the first and second constellation point sets as defined in claim 11. Lee is silent about conveying third data at all.

For all these reasons set forth above with respect to claim 1 and in view of the similarity between the relevant limitations in claims 1 and 15, it is submitted that Lee does not teach, show, or suggest all the elements of claims 1 and 15 and the claims dependent thereon.

In light of these remarks, it is believed that claims 1 and 15 and the claims dependent thereon are not anticipated by Lee. Thus, it is submitted that claims 1-6 and 9-17 are allowable under 35 U.S.C. §102. Withdrawal of this rejection is respectfully requested.

Rejection of Claims 7 and 8 under 35 U.S.C. §103

Claims 7 and 8 stand rejected under 35 U.S.C. §103 as being unpatentable over Lee in view of Mizuno. This rejection is respectfully traversed.

Claims 7 and 8 depend ultimately from independent claim 1 and include at least the limitations of the independent base claim. Claim 1 has already been patentably distinguished from Lee in the remarks immediately preceding this section. Those remarks are intended to apply herein without further repetition.

Mizuno has been added to Lee apparently to cure the deficiencies in Lee concerning the actual constellation point values and the relationship among various points. However, the Office Action does not provide any explanation or supporting evidence as to why one of ordinary skill in the art would believe that Mizuno's alleged phase shifting of coordinates are related to any multiplicative factor such as the factor of 2 as claimed.

The Office Action simply provides conclusory statements to support the combination of references in making this rejection. Nowhere is there any suggestion in either reference or with the knowledge of one ordinarily skilled in the art to support these conclusory statements.

KSR makes clear that rejections on obviousness cannot be sustained by mere conclusory statements; instead KSR requires that an Examiner provide "some

articulated reasoning with some rationale underpinning to support the legal conclusion of obviousness.” (KSR Opinion at p. 14). An Examiner must “identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does,” (KSR Opinion at p. 15). And, the Examiner must make “explicit” this rationale of “the apparent reason to combine the known elements in the fashion claimed,” including a detailed explanation of “the effects of demands known to the design community or present in the marketplace” and “the background knowledge possessed by a person having ordinary skill in the art.” (KSR Opinion at p. 14). Anything less than such an explicit analysis may not be sufficient to support a prima facie case of obviousness.

The Applicant respectfully submits that the Office has not presented a prima facie case of obviousness and the rejection should be withdrawn.

Furthermore, Mizuno does not cure the deficiencies in Lee with respect to the actual constellation point values and the relationship among various points because Mizuno lacks any teachings that certain ordinates and abscissas are related to other point coordinates by a factor of two. Mizuno appears to show phase shifting of coordinates so that constellation points lie along the same circle, but there is no teaching or suggestion that the coordinates are related by any multiplicative factor such as the factor of 2. For all the reasons set forth immediately above and for the reasons set forth with respect to the limitations in claim 1, it is submitted that Lee and Mizuno do not teach, show, or suggest all the elements of claims 7 and 8.

In light of these remarks, it is believed that claims 7 and 8 would not have been obvious to a person of ordinary skill in the art upon a reading of Lee and Mizuno, either separately or in combination. Thus, it is submitted that claims 7 and 8 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that all the claims pending in this patent application are in condition for allowance. Entry of this

amendment, reconsideration of the application, and allowance of all the claims are respectfully solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner contact the Applicant's attorney, so that a mutually convenient date and time for a telephonic interview may be scheduled for resolving such issues as expeditiously as possible.

In the event there are any errors with respect to the fees for this response or any other papers related to this response, the Director is hereby given permission to charge any shortages and credit any overcharges of any fees required for this submission to Deposit Account No. 14-1270.

Respectfully submitted,

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